



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,908	06/19/2001	Tetsuya Fukunaga	208555US0PCT	1916

22850 7590 09/22/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

LISH, PETER J

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 09/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/831,908

Applicant(s)

FUKUNAGA ET AL.

Examiner

Peter J Lish

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3,4,6-10,14,16-18 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22 is/are allowed.
- 6) ☒ Claim(s) 3,4,6-10,14,16-18,20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

Applicant's arguments with respect to the application of *In re Kerkhoven*, 205 USPQ 1069, have been fully considered but they are not persuasive. The citation of *In re Kerkhoven* indicates that combining known materials for their intended function is obvious; the Kerkhoven process makes a composition, so the logic is still valid.

Applicant's arguments with respect to the combination of Yasushi and Nishino have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Courty et al. (US 4,207,169).

Courty discloses a catalyst which comprises alumina containing between 0.05 and 1 % titanium dioxide (titania),<sup>1</sup> from 0.1 to 1 % ruthenium, and from 0.01 to 5 % lithium, sodium, potassium, rubidium, or cesium. No difference is seen between the catalyst of the Courty et al. and that of the instantly claimed invention.

#### *Claim Rejections - 35 USC § 103*

Art Unit: 1754

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4, 6-10, 14, 16-18, and 20-21 are rejected under 35 U.S.C. 103(a) as being obvious over Yasushi (JP 09-131531).

Yasushi discloses a catalyst, for the removal of CO in hydrogen-containing gas, which consists of ruthenium and an alkali metal and/or alkaline earth metal on a fireproof inorganic oxide carrier. The inorganic oxide carrier may be made of at least one selected from among titania, alumina, etc, or may be combinations of these oxides, such as that of titania-alumina. Additionally, In re Kerkhoven (205 USPQ 1069) holds that it is obvious to combine two compositions each of which is taught by prior art to be useful for same purpose in order to form third composition that is to be used for the very same purpose. Yasushi does not specify a limit on the weight ratio of titania to alumina in such a carrier, however it is expected that the ratio may be within the limits of 0.1/99.9 and 90/10, because these represent an immense range of carrier compositions. Furthermore, it would have been obvious to one of ordinary skill at the time of invention to utilize a titania-alumina carrier composition within these limits, as doing so is taught to be the optimization of a known process.

The alkali metal may be chosen from the group consisting of K, Cs, Rb, Na, and Li, and is present in an amount of 0.01-10 %, preferably 0.03-3 % (weight of catalyst). The ruthenium catalyst is applied to the support by contacting the support in catalyst containing solution at

Art Unit: 1754

between 20-90 °C for between 1 minute and 10 hours, yielding a ruthenium content of between 0.05 and 10 %, preferably 0.3 and 3 % (weight of catalyst). The alkali/alkaline earth metal are also applied to the support by contacting the support in catalyst containing solution at between 20-90 °C for between 1 minute and 10 hours. Regarding claim 7, it would be obvious to one of ordinary skill in the art at the time of invention to apply the catalysts to the carrier simultaneously, given the equivalent treatment processes.

The catalyst is used to remove CO in essentially hydrogen gas, such as reformed gas obtained by reforming the fuel for hydrogen manufacture, and is used for manufacture of the hydrogen content gas for fuel cells [paragraph 0022].

#### ***Allowable Subject Matter***

Claim 22 is allowed. The following is a statement of reasons for the indication of allowable subject matter: Unexpected results are shown, specifically, that the catalysts having a titania-alumina weight ratio within the claimed range are active at higher maximum temperatures than those catalysts having only titania or alumina.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 703-308-1772. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the

Application/Control Number: 09/831,908

Page 5

Art Unit: 1754

organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

PL

September 11, 2003



STUART L. HENDRICKSON  
PRIMARY EXAMINER